

**Write an inequality for the following statements.**

1.) The theater can seat no more than 500 people.

$$x \leq 500$$

2.) The ladder can reach a maximum of 20 feet up the wall.

$$x \leq 20$$

3.) They need at least 51% of the people to vote yes for the proposal to pass.

$$y \geq 51$$

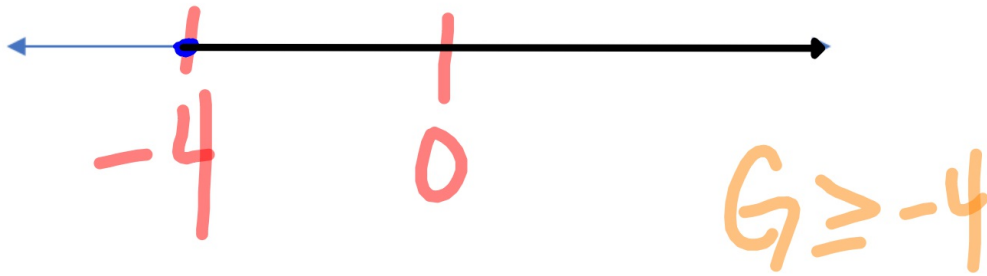
4.) The team can have up to 18 players on the roster.

$$x \leq 18$$

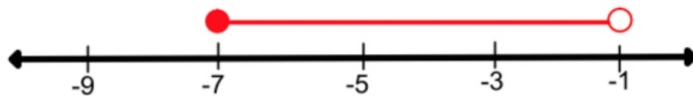
5.) The minimum charge allowed to be able to use a credit card is \$10.

$$c \geq 10$$

6.) Graph this inequality:  $-4 \leq G$



7.) Write an inequality for the following graph.



$$X \geq -7 \text{ and } X < -1$$

$$-7 \leq X < -1$$

Solve each inequality/absolute value equation.

8.)  $4 - 3(y - 5) + 9y > 15 + 6y$

$$4 - 3y + 15 + 9y > 15 + 6y$$

$$19 + 6y > 6y + 15$$

$$19 > 15 \quad \mathbb{R}$$

9.)  $\left(\frac{11}{9} - \frac{7}{6}M\right) < \left(\frac{5}{12}\right)$

$$\begin{array}{r} 44 - 42m < 15 \\ -44 \quad -44 \end{array}$$

$$\frac{-42m}{-42} < \frac{-29}{-42}$$

$$m > 0.69$$

$$\text{or } \frac{29}{42}$$

$$10.) 3|2x - 7| + 4 = 31$$

$$\begin{array}{r} -4 \quad -4 \end{array}$$

$$3|2x - 7| = 27$$

$$|2x - 7| = 9$$

$$2x - 7 = 9$$

$$x = 8$$

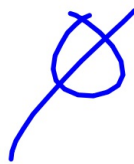
$$2x - 7 = -9$$

$$x = -1$$

$$11.) \frac{1}{2}|3x + 8| + 13 = 5$$

$$\begin{array}{r} -13 \quad -13 \\ \hline \end{array}$$

$$= -8$$



Answers to HW #25

16.  $m = -5, 1$

17.  $v = -5, 9$

18. No Solution

19.  $d = -7, 1$

20.  $d = -1, 1$

21.  $p = -0.6, 0.6$

22. a. less than      b. greater than

49.  $a = -8, 8$

$$49. \left| \frac{1}{2}a \right| + 1 = 5$$

16.  $3 = |m + 2|$

17.  $|v - 2| = 7$

18.  $-3|y - 3| = 9$

19.  $2|d + 2| = 8$

20.  $2|d + 1| = 4$

21.  $1.2|p + 1| = 0.6$

22. Complete each statement with *less than* or *greater than*.

a. For  $|x| < 5$ , the graph includes all points whose distance is 2 5 units

1.) Solve:

$$\frac{1}{3}|x| + 8 = 20$$

$$\begin{array}{cc} -8 & -8 \end{array}$$

$$3 \cdot \frac{1}{3}|x| = 12 \cdot 3$$

$$|x| = 36$$

$$x = 36$$

$$x = -36$$

2.) Solve:

$$3|x - 2| - 10 = 11$$

$$3|x - 2| = 21$$

$$|x - 2| = 7$$

$$x - 2 = 7$$

$$x = 9$$

$$x - 2 = -7$$

$$x = -5$$

3.) Solve:  $\frac{-6|2x - 14|}{-6} = \frac{-42}{-6}$

$$|2x - 14| = 7$$

$$2x - 14 = 7$$

$$x = \frac{21}{2}$$

$$2x - 14 = -7$$

$$x = \frac{7}{2}$$

Write an inequality to model each statement:

1. The team needs at least 42,000 fans to show up for the last game to break the attendance record.

$$x \geq 42,000$$

2. You can take no more than 45 minutes to complete the test.

$$x \leq 45$$

3. In order to make a profit the dealer needs to sell a minimum of 35 cars this month.

$$x \geq 35$$

4. The restaurant can seat up to 120 people at a time.

$$x \leq 120$$

5. The maximum score on the SAT test is 1600.

$$x \leq 1600$$

6. To be a pilot your standing height must be between 62 inches and 77 inches.

$$x \geq 62 \text{ and } x \leq 77$$

7. To get a discount movie ticket you can be no more than 10 years old or must be at least 60 years old.

$$x \leq 10 \text{ or } x \geq 60$$

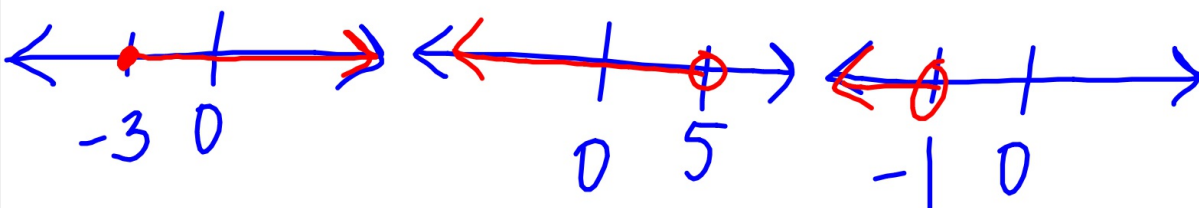


Graph each inequality on a number line.

8.  $y \geq -3$

9.  $m < 5$

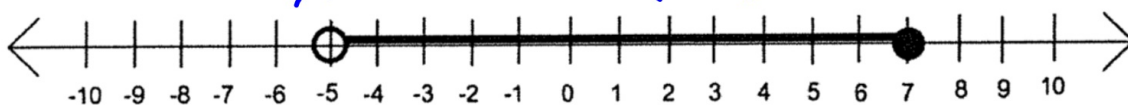
10.  $-1 > c$



Model each graph with an inequality.

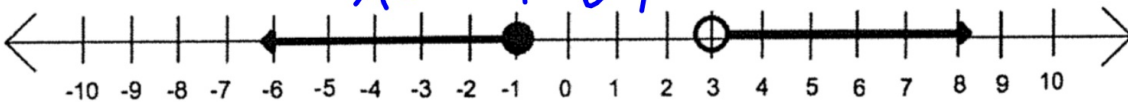
14.

$x > -5$  and  $x \leq 7$



15.

$x \leq -1$  or  $x > 3$



Solve each inequality.

$$17. \quad 9 - 4x \geq 29$$

$-9 \qquad -9$

$$\begin{array}{r} -4x \geq 20 \\ \hline -4 \quad \quad -4 \\ x \leq -5 \end{array}$$

$$18. \quad -7 + 2(w - 3) < -42$$

$$-7 + 2w - 6 < -42$$

$$-13 + 2w < -42$$

$$2w < -29$$

$$w < -14.5$$